Electronic Supplementary Information for Dalton Transactions

Diversification of Hydrothermal Reaction Products Induced by Temperature, Syntheses, Structures, and Properties of Four La(III)-Cu(II) Metal Frameworks Constructed from Rod-Shaped Molecular Building Blocks

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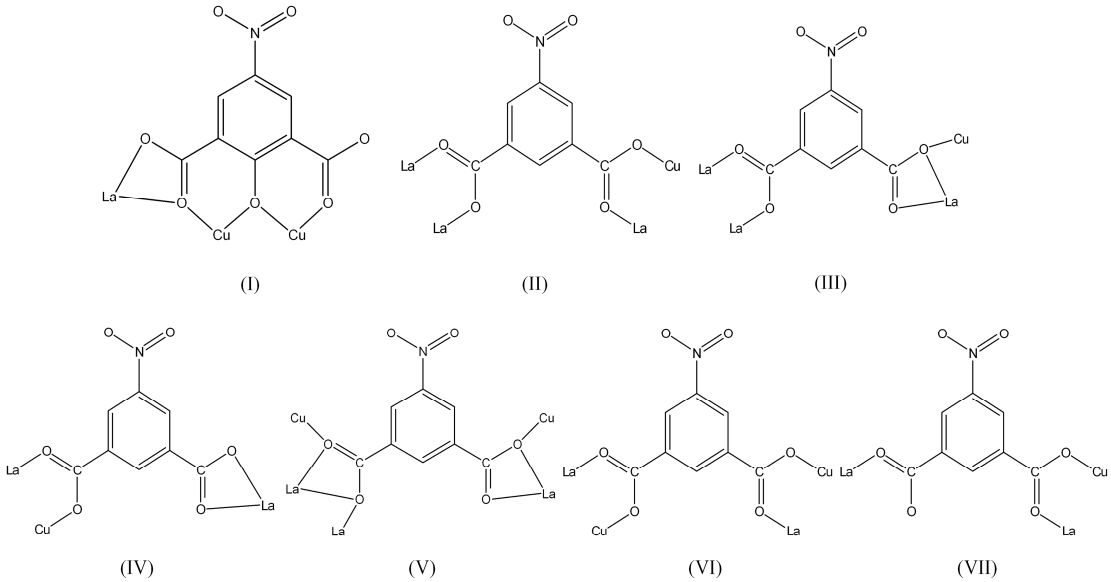

Scheme S1 Schemetic representation of the coordination modes of NIPH ligands in compounds **1**-**4**. Mode I and II for **1**, Mode III and IV for **2**, Mode II and V for **3**, Mode IV, VI and VII for **4**.

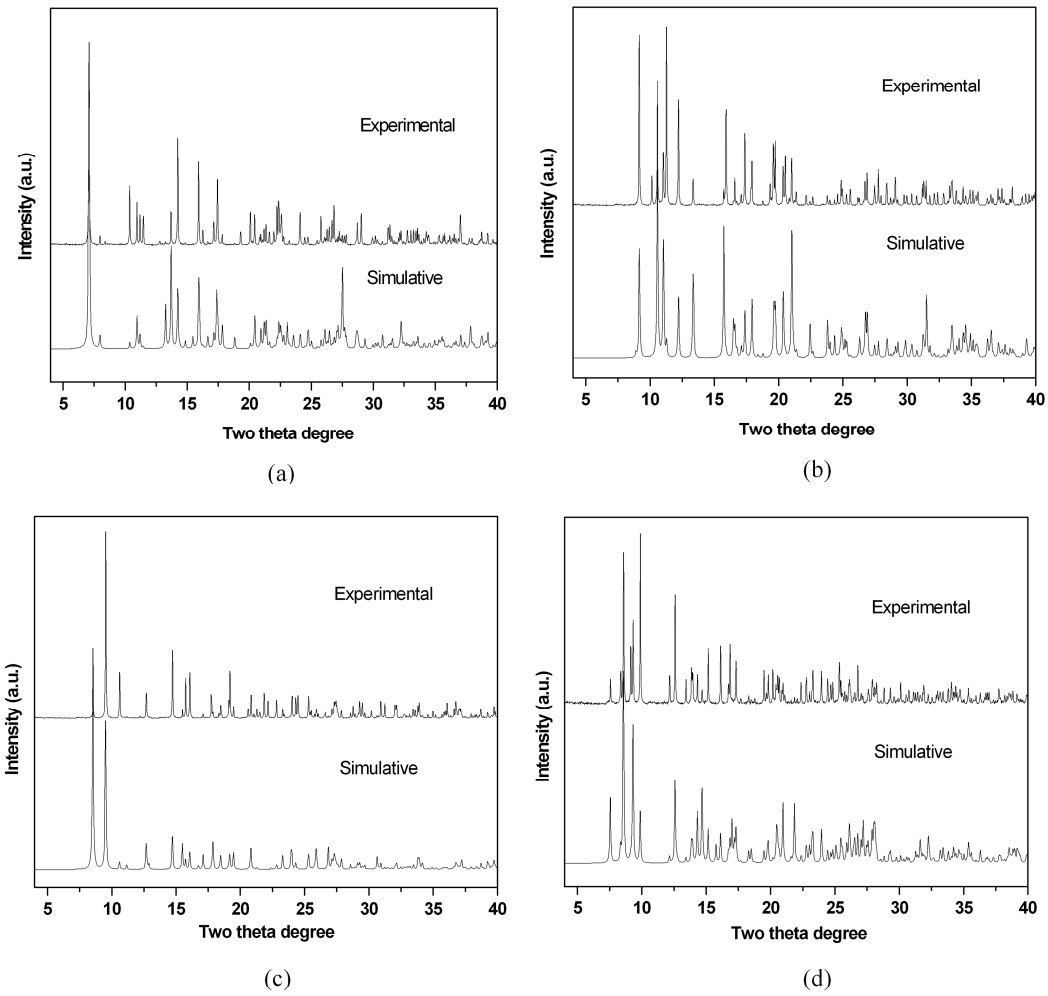

Fig. S1 Experimental and simulated powder X-ray diffraction patterns of **1** (a), **2** (b), **3** (c) and **4** (d).

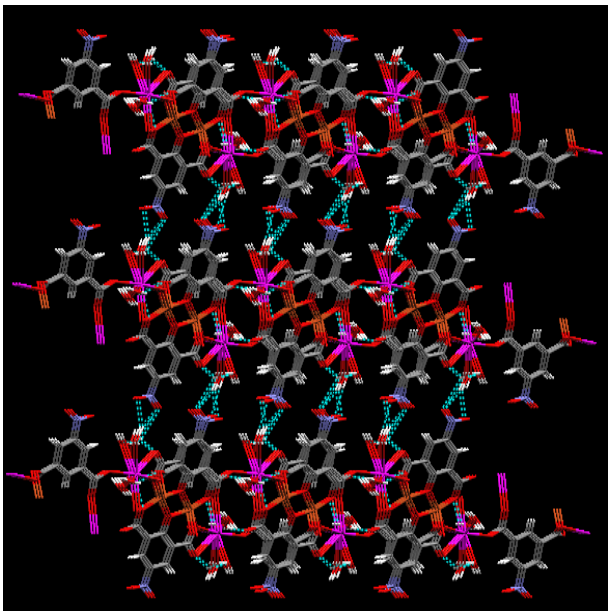

Fig. S2 Perspective view of the hydrogen-bond interactions and three-dimensional network in **1.**

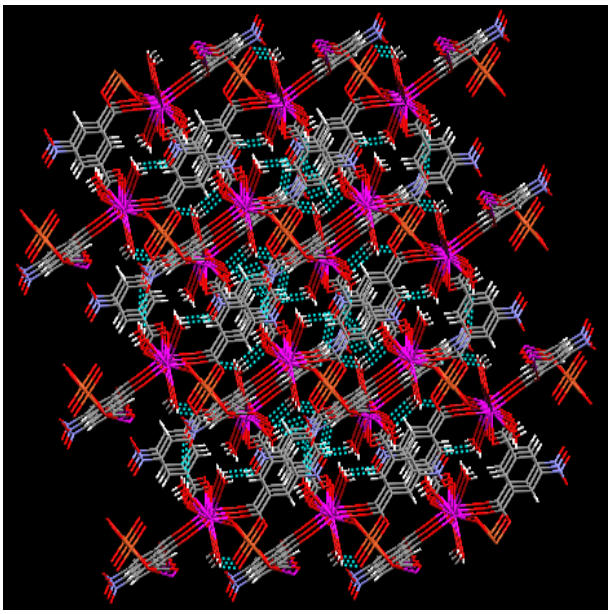

Fig. S3 Perspective view of the hydrogen-bond interactions and three-dimensional network in **2**.

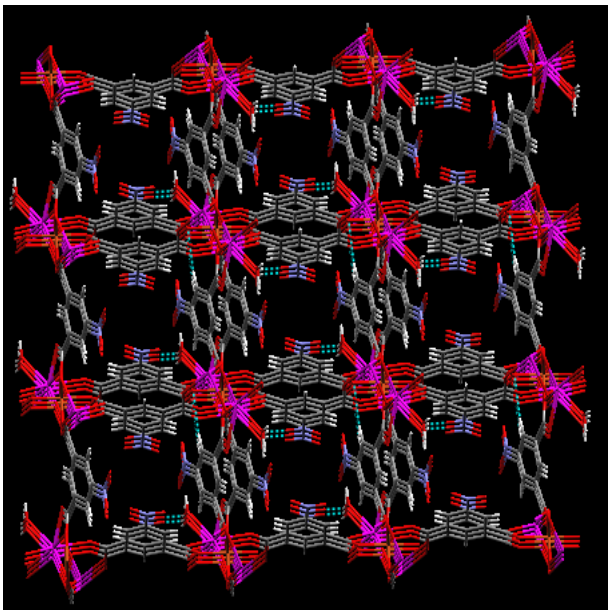

Fig. S4 Perspective view of the hydrogen-bond interactions and three-dimensional network in **3**.

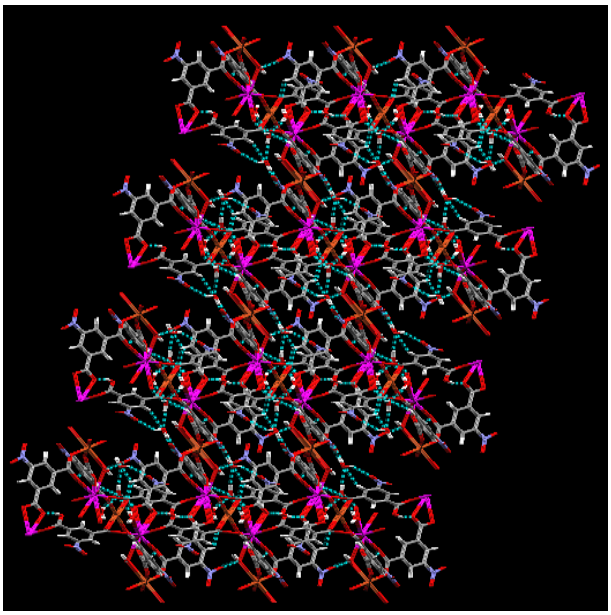

Fig. S5 Perspective view of the hydrogen-bond interactions and three-dimensional network in **4**.

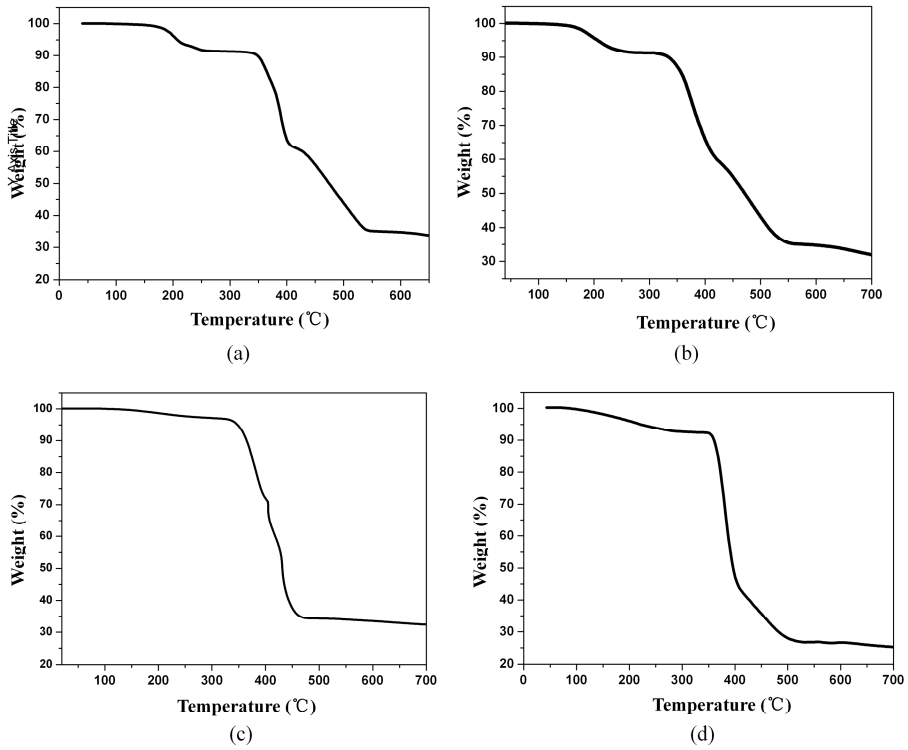

Fig. S6 Thermogravimetric curve for (a) **1**, (b) **2**, (c) **3**, (d) **4**.

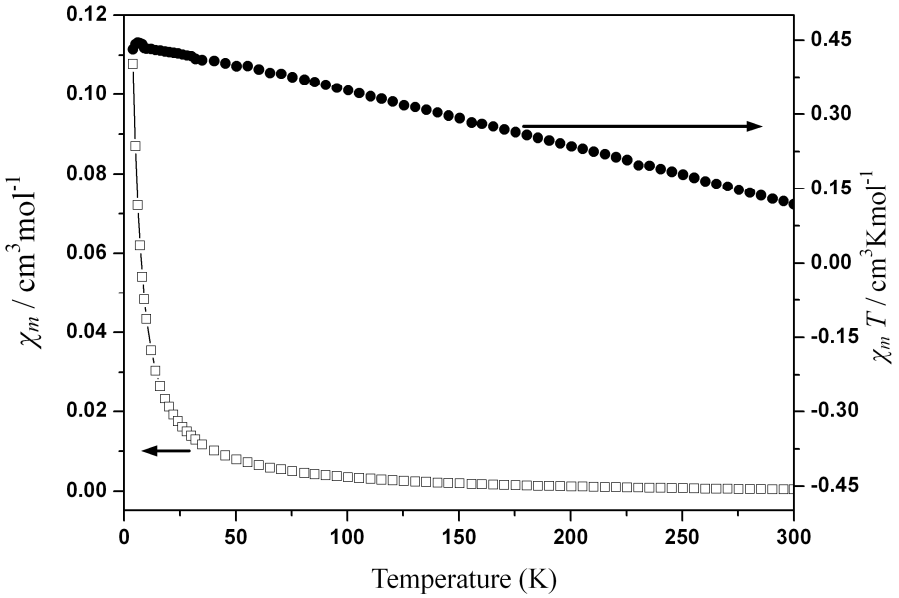

Fig. S7 Temperature variation of the magnetic susceptibility χ_m and $\chi_m T$ for **4**.

Table S1 Hydrogen bonds for **1-4** [Å and °]

D-H···A	d(D-H)	d(H···A)	d(D···A)	<(DHA)
1				
O(15)-H(15A)···O(18)	0.82	2.03	2.847(6)	172.0
O(17)-H(17B)···O(10)$^{\#1}$	0.889(17)	2.06(3)	2.833(4)	144(4)
O(14)-H(14A)···O(3)$^{\#2}$	0.82	1.87	2.684(4)	174.8
O(14)-H(14B)···O(4)$^{\#3}$	0.902(18)	2.12(3)	2.814(5)	133(3)
O(15)-H(15B)···O(5)$^{\#3}$	0.895(18)	2.42(3)	3.033(6)	126(3)
O(17)-H(17A)···O(4)$^{\#4}$	0.82	2.05	2.761(4)	145.3
O(16)-H(16A)···O(18)$^{\#5}$	0.82	2.15	2.935(6)	159.4
O(18)-H(18B)···O(6)$^{\#6}$	0.901(17)	2.38(3)	3.111(6)	139(4)
O(17)-H(17B)···O(3)$^{\#7}$	0.889(17)	2.53(4)	3.190(5)	131(3)
O(16)-H(16B)···O(12)$^{\#8}$	0.885(18)	2.07(2)	2.832(6)	144(3)
2				
O(13)-H(13B)···O(9)$^{\#1}$	0.663(13)	2.513(13)	2.8565(16)	114.9(13)
O(14)-H(14A)···O(7)$^{\#2}$	0.773(14)	2.186(12)	2.7841(14)	134.7(10)
O(14)-H(14B)···O(10)$^{\#3}$	0.852(11)	1.978(11)	2.8246(17)	172.1(13)
O(15)-H(15A)···O(5)$^{\#4}$	0.657(12)	2.325(12)	2.9801(16)	174.3(15)
O(13)-H(13A)···O(11)$^{\#5}$	0.735(10)	2.232(11)	2.9638(18)	173.3(14)
O(15)-H(15B)···O(6)$^{\#6}$	0.765(11)	2.176(12)	2.9366(16)	172.5(14)
3				
O(13)-H(13A)···O(11)$^{\#1}$	0.82	2.15	2.945(14)	162.1
4				
O(20)-H(20B)···O(13)	0.789(18)	2.24(4)	2.951(7)	151(7)
O(20)-H(20A)···O(10)$^{\#1}$	0.81(8)	2.56(8)	2.986(7)	115(6)
O(21)-H(21B)···O(4)$^{\#3}$	0.79(8)	2.20(8)	2.834(7)	137(7)
O(21)-H(21A)···O(22)$^{\#4}$	0.87(8)	1.98(8)	2.813(9)	160(7)
C(12)-H(12)···O(2)$^{\#4}$	0.76(8)	2.70(8)	3.443(7)	169(7)
O(20)-H(20A)···O(5)$^{\#5}$	0.81(8)	2.25(8)	2.898(7)	137(7)
O(22)-H(22A)···O(18)$^{\#6}$	0.89(8)	2.17(8)	2.976(11)	151(7)
O(15)-H(15A)···O(3)$^{\#7}$	0.89(8)	1.71(8)	2.574(6)	165(7)
C(10)-H(10)···O(21)$^{\#8}$	0.94(8)	2.41(8)	3.303(7)	160(6)
O(19)-H(19B)···O(21)$^{\#8}$	0.79(8)	2.11(8)	2.841(8)	155(8)
O(22)-H(22B)···N(2)$^{\#9}$	1.05(8)	2.61(8)	3.632(8)	164(6)
O(22)-H(22B)···O(11)$^{\#9}$	1.05(8)	1.78(8)	2.825(8)	172(6)
O(19)-H(19A)···O(21)$^{\#10}$	0.68(8)	2.07(8)	2.737(7)	166(9)

Symmetry transformations used to generate equivalent atoms: For **1**: #1 x,y-1,z; #2 -x,-y+1,-z+1; #3 x,y+1,z; #4 x+1,y+1,z; #5 x+1,y,z; #6 -x+1,-y+1,-z+2; #7 -x+1,-y+1,-z+1; #8 -x+2,-y+2,-z+2. For **2**: #1 -x+1,-y+2,-z+1; #2 -x+1,-y+1,-z+2; #3 x+1,y-1,z; #4 x-1,y+1,z; #5 -x,-y+2,-z+2; #6 -x+3,-y+1,-z+1. For **3**: #1 x, y+1, z-1. For **4**: #1 x+1,y,z; #2 x,y+1,z; #3 -x+1,-y+2,-z+1; #4 x-1,y,z; #5 x,y-1,z; #6 -x+1,-y+1,-z+1; #7 -x+1,-y+1,-z; #8 -x,-y+1,-z+1; #9x+1,y-1,z; #10 x,y,z-1.